

# 14. NOISE

## 14.1 INTRODUCTION

The Noise chapter of the EIR describes the existing noise environment in the project vicinity, and identifies potential impacts and mitigation measures related to noise and vibration associated with construction and operation of the proposed project. The method by which the potential impacts are analyzed is discussed, followed by the identification of potential impacts and the recommended mitigation measures designed to reduce significant noise and vibration impacts to less-than-significant levels, if required. The Noise chapter is primarily based on the Environmental Noise & Vibration Assessment (Noise Assessment) prepared for the proposed project by Bollard Acoustical Consultants, Inc. (BAC) (see Appendix K of this EIR).<sup>1</sup> Other sources of information used in this chapter include the Placer County General Plan,<sup>2</sup> Placer County General Plan EIR,<sup>3</sup> and the Dry Creek-West Placer Community Plan (DCWPCP).<sup>4</sup>

## 14.2 EXISTING ENVIRONMENTAL SETTING

The Existing Environmental Setting section provides background information on noise and vibration, a discussion of acoustical terminology and the effects of noise on people, existing sensitive receptors in the project vicinity, existing sources and noise levels in the project vicinity, and groundborne vibration.

### Fundamentals of Noise

Decibels (dB) are logarithmic units that compare the wide range of sound intensities to which the human ear is sensitive. The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the typical range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and the use of A-weighted sound level, expressed as dBA, has become the standard tool of environmental noise assessment. Noise levels associated with common noise sources are provided in Figure 14-1.

Several time-averaged scales represent noise environments and consequences of human activities. Community Noise Equivalent Level (CNEL), which can be used to compare the noise level of neighborhoods, is the weighted average noise level over time, presented in dB. Community noise is also commonly described in terms of the ambient noise level, which is defined as the overall noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level ( $L_{eq}$ ). The  $L_{eq}$  is the foundation of the day-night average noise descriptor ( $L_{dn}$  or DNL), and represents a correlation with community response to noise.

<sup>1</sup> Bollard Acoustical Consultants, Inc. *Environmental Noise & Vibration Assessment, Creekview Ranch, Placer County, California*. March 11, 2022.

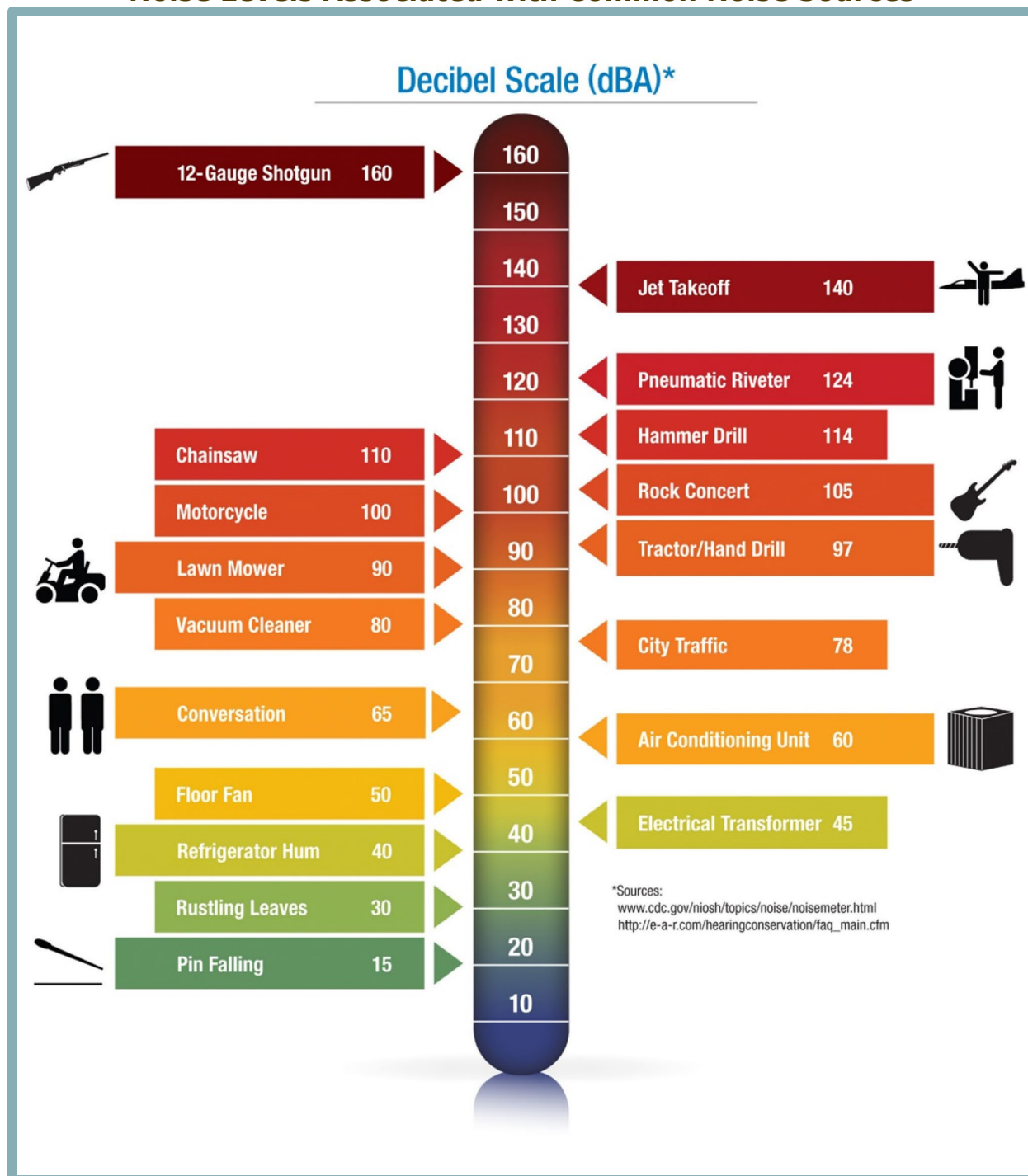
<sup>2</sup> Placer County. *Countywide General Plan Policy Document*. August 1994 (updated May 2013).

<sup>3</sup> Placer County. *Countywide General Plan EIR*. July 1994.

<sup>4</sup> Placer County. *Dry Creek-West Placer Community Plan*. Amended May 12, 2009.



**Figure 14-1  
Noise Levels Associated with Common Noise Sources**



Source: Bollard Acoustical Consultants, Inc., 2022.



The  $L_{dn}$  is based on the average noise level over a 24-hour period, with an additional 10 dB weight applied to noise that occurs during nighttime hours (10:00 PM to 7:00 AM). The 10 dB nighttime penalty is applied to account for the assumption that people are more sensitive to nighttime noise exposures as compared to daytime noise exposures. Finally, the highest root-mean-square (RMS) sound level measured over a given period of time is expressed as  $L_{max}$ .

Stationary sources of noise, including construction equipment, attenuate at a rate of 6.0 to 7.5 dB per doubling of distance from the source depending on ground absorption. Soft sites attenuate at 7.5 dB per doubling of distance, as such sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. Hard sites have reflective surfaces (e.g., parking lots or smooth bodies of water) and, therefore, have less attenuation (6.0 dB per doubling of distance). Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, increase the efficacy of noise attenuation that occurs by distance alone.

### **Existing Sensitive Receptors**

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise, because intrusive noise can be disruptive to such activities. Sensitivity to ambient noise levels is also related to the amount of noise exposure (in terms of both exposure time and shielding from noise sources). Noise sensitive land uses typically include residences, schools, child care centers, hospitals, long-term health care facilities, convalescent centers, retirement homes, and recreation areas.

The existing noise-sensitive land uses in the project vicinity consist of residential uses generally located west of the Schellhous and Placer Greens parcels. More specifically, the nearest existing residence from where on-site construction activities would occur is located approximately 75 feet west of the Schellhous parcel. Existing industrial and agricultural uses are also located within the project vicinity; however, such uses are typically not considered to be noise-sensitive, but, rather, noise-generating.

### **Existing Ambient Noise Environment**

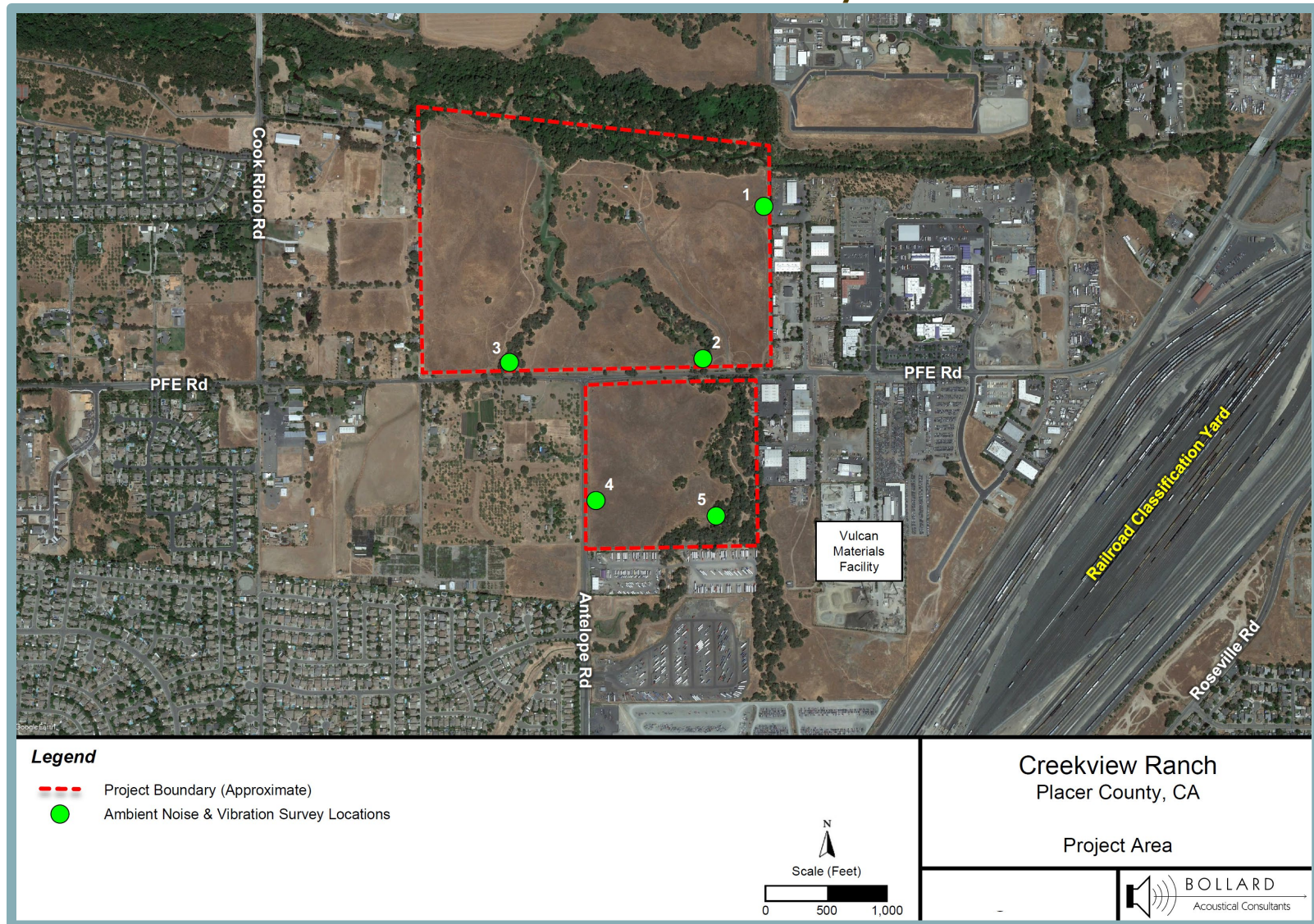
The existing ambient noise environment at the project site is defined primarily by noise from traffic on PFE Road, which bisects the Schellhous and Placer Greens parcels; operations at adjacent industrial uses to the east of both parcels and south of the Placer Greens parcel; operations at the Roseville Dry Creek Wastewater Treatment Plant, and distant intermittent Union Pacific Railroad (UPRR) operations to the east of the project site.

To quantify existing ambient noise levels within the project area, BAC conducted long-term (72-hour) ambient noise level measurements at five locations from July 13 to July 15, 2021. The equipment and approach used to evaluate existing noise levels are discussed in the Method of Analysis section of this chapter. The long-term noise survey locations are shown on Figure 14-2. Site 1 was specifically selected to capture the ambient noise level environment associated with adjacent industrial and wastewater treatment plant operations to the northeast of the Schellhous parcel. Sites 2 through 4 were chosen to be representative of the ambient noise level environment associated with PFE Road (Sites 2 and 3) and Antelope Road (Site 4) adjacent to the project site. Finally, Site 5 was specifically selected to capture noise levels associated with activities at adjacent industrial uses to the south of the Placer Greens parcel.





**Figure 14-2**  
**Ambient Noise and Vibration Survey Locations**



The results of the long-term ambient noise survey are summarized in Table 14-1. As shown in the table, DNL,  $L_{eq}$ , and  $L_{max}$  noise levels were generally consistent at each individual survey site throughout the monitoring period, with the values at each site fluctuating over a small range during the three days.

<b>Table 14-1 Long-Term Ambient Noise Survey Results<sup>1</sup></b>						
<b>Survey Location<sup>2</sup></b>	<b>Date</b>	<b>DNL</b>	<b>Average Measured Hourly Noise Levels (dBA)<sup>3</sup></b>			
			<b>Daytime</b>		<b>Nighttime</b>	
			<b><math>L_{eq}</math></b>	<b><math>L_{max}</math></b>	<b><math>L_{eq}</math></b>	<b><math>L_{max}</math></b>
Site 1: Northeast area of Schellhous parcel, along industrial uses to the east	7/13/21	53	49	65	46	60
	7/14/21	52	50	67	45	58
	7/15/21	52	50	66	44	59
Site 2: Approximately 65 feet from centerline of PFE Road	7/13/21	62	59	72	54	70
	7/14/21	62	59	76	54	71
	7/15/21	61	58	73	54	70
Site 3: Approximately 45 feet from centerline of PFE Road	7/13/21	63	61	81	55	72
	7/14/21	63	61	79	55	76
	7/15/21	63	61	80	55	75
Site 4: Approximately 45 feet from centerline of Antelope Road	7/13/21	72	69	86	64	82
	7/14/21	72	68	85	64	82
	7/15/21	71	68	86	64	81
Site 5: Southeast area of Placer Greens parcel, near industrial uses to the south	7/13/21	53	48	67	46	59
	7/14/21	52	47	65	45	58
	7/15/21	51	47	64	44	57
<sup>1</sup> Detailed summaries of the noise monitoring results are provided in Appendices D and E of the Noise Assessment. <sup>2</sup> Long-term ambient noise monitoring locations are identified on Figure 14-2. <sup>3</sup> Daytime hours: 7:00 AM to 10:00 PM   Nighttime hours: 10:00 PM to 7:00 AM.						
<b>Source: Bollard Acoustical Consultants, Inc., 2022.</b>						

### Existing Traffic Noise Levels

The Federal Highway Administration (FHWA) Traffic Noise Model (FHWA-RD-77-108) was used to develop existing noise contours, expressed in DNL, for major roadways within the project vicinity. The approach used to evaluate existing traffic noise levels is discussed in the Method of Analysis section of this chapter. The traffic noise level at 100 feet from the roadway centerlines and distances from the centerlines of the 60 dB DNL, 65 dB DNL, and 70 dB DNL contours are summarized in Table 14-2. The actual distances to noise level contours may vary from the distances predicted by the FHWA Model. Factors such as roadway curvature, roadway grade, shielding by way of local topography or structures, elevated roadways, or elevated receivers may affect actual sound propagation. In addition, existing sensitive land uses within the project vicinity are located at varying distances from the centerlines of the local roadway network. A 100-foot reference distance is used to provide a reference position at which changes in existing and future traffic noise levels resulting from the proposed project can be evaluated.





**Table 14-2  
Existing Traffic Noise Modeling Results**

Roadway	Segment	DNL 100 Feet from Roadway	Distance to Contour (Feet)		
			70 dB DNL	65 dB DNL	60 dB DNL
Cook Riolo Road	Vineyard Road to Creekview Ranch School	57	15	32	68
	Creekview Ranch School to PFE Road	57	14	29	64
PFE Road	Walerga Road to Cook Riolo Road	60	23	49	106
	Cook Riolo Road to Antelope Road	61	27	58	124
	Antelope Road to Hilltop Circle	63	32	69	150
Atkinson Street	Hilltop Circle to Denio Loop	66	50	108	234
Antelope Road	PFE Road to Great Valley Drive	62	29	63	137
	Great Valley Drive to Poker Lane	64	37	80	173

**Source: Bollard Acoustical Consultants, Inc., 2022.**

### **Fundamentals of Vibration**

Vibration is similar to noise in that both involve a source, a transmission path, and a receiver. However, while noise is generally considered to be pressure waves transmitted through air, vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's response to vibration depends on their individual sensitivity, as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second (in/sec) peak particle velocity (PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception, as well as damage to structures, have been developed for vibration in terms of PPV and RMS velocities. As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes decrease with increasing distance.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases. According to the California Department of Transportation (Caltrans) *Transportation and Construction Vibration Guidance Manual*, operation of construction equipment and construction techniques generate ground vibration. Roadway traffic can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. However, traffic rarely generates vibration amplitudes high enough to cause structural or cosmetic damage.

### **Existing Ambient Vibration Environment**

During BAC site visits conducted on July 12 and 15, 2021, vibration levels were below the threshold of perception within the project vicinity. Nonetheless, to quantify existing vibration levels in the project area, BAC conducted short-term (10-minute) vibration measurements at the five survey locations identified on Figure 14-2 on July 15, 2021. The results are summarized in Table 14-3 and indicate that measured maximum vibration levels within the project area ranged from less than 0.001 to 0.015 PPV in/sec.



**Table 14-3  
Short-Term Ambient Vibration Survey Results**

<b>Survey Location</b>	<b>Time</b>	<b>Measured Maximum Vibration Level, PPV (in/sec)</b>
Site 1: Northeast area of Schellhaus parcel, along industrial uses to the east	11:05 AM	<0.001
Site 2: Approximately 65 feet from centerline of PFE Road	11:35 AM	0.002
Site 3: Approximately 45 feet from centerline of PFE Road	10:32 AM	0.015
Site 4: Approximately 45 feet from centerline of Antelope Road	9:54 AM	<0.001
Site 5: Southeast area of Placer Greens parcel, near industrial uses to the south	9:20 AM	<0.001

*Source: Bollard Acoustical Consultants, Inc., 2022.*

### 14.3 REGULATORY CONTEXT

In order to limit exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the State have established standards and ordinances to control noise. Applicable federal laws or regulations pertaining to noise or vibration that would directly apply to the proposed project do not exist. The following provides a general overview of the existing State and local regulations that are relevant to the proposed project.

#### **State Regulations**

The following are the State environmental laws and policies relevant to noise and vibration.

#### **California Building Code**

The California Building Code (Title 24, Part 2 of the California Code of Regulations [CCR]) establishes uniform minimum noise insulation performance standards to protect persons within new buildings that house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings.

Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L<sub>dn</sub> or CNEL in any habitable room. Title 24 also requires that for structures containing noise-sensitive uses to be located where the L<sub>dn</sub> or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

#### **Local Regulations**

The following are the local environmental goals and policies relevant to noise and vibration.

#### **Placer County General Plan**

The relevant goals and policies from the Placer County General Plan related to noise and vibration are presented below.



Goal 9.A	To protect County residents from the harmful and annoying effects of exposure to excessive noise.
Policy 9.A.1	The County shall not allow development of new noise-sensitive uses where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 9-1 (see Table 14-4) as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 9-1 (see Table 14-4).
Policy 9.A.2	Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 9-1 (see Table 14-4) as measured immediately within the property line of lands designated for noise-sensitive uses: provided, however, the noise created by occasional events occurring within a stadium on land zoned for university purposes may temporarily exceed these standards as provided in an approved Specific Plan.
Policy 9.A.5	Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 9-1 (see Table 14-4) at existing or planned noise-sensitive uses, the County shall require submission of an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design.
Policy 9.A.6	The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 9-3 (see Table 14-5).
Policy 9.A.8	New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources, including airports, which exceed the levels specified in Table 9-3 (see Table 14-5), unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table 9-3 (see Table 14-5).
Policy 9.A.9	Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 9-3 (see Table 14-5) or the performance standards in Table 9-3 (see Table 14-5) at outdoor activity areas or interior spaces of existing noise sensitive land uses.





**Table 14-4**  
**Allowable L<sub>dn</sub> Noise Levels Within Specified Zone Districts**  
**Applicable to New Projects Affected by or Including Non-**  
**Transportation Noise Sources<sup>1</sup>**

Zone District of Receptor	Property Line of Receiving Use (L <sub>dn</sub> , dB)	Interior Spaces <sup>2</sup>
Residential Adjacent to Industrial <sup>3</sup>	60	45
Other Residential <sup>4</sup>	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45
Limited Industrial	75	45
Highway Service	75	45
Shopping Center	70	45
Industrial	---	45
Industrial Park	75	45
Industrial Reserve	---	---
Airport	---	45
Unclassified	---	---
Farm	---	---
Agriculture Exclusive	---	---
Forestry	---	---
Timberland Preserve	---	---
Recreation & Forestry	70	---
Open Space	---	---
Mineral Reserve	---	---

**Notes:**

- Except where noted otherwise, noise exposures will be those which occur at the property line of the receiving use.
- Where existing transportation noise levels exceed the standards of this table, the allowable L<sub>dn</sub> shall be raised to the same level as that of the ambient level.
- If the noise source generated by, or affecting, the uses shown above consists primarily of speech or music, or if the noise source is impulsive in nature, the noise standards shown above shall be decreased by 5 dB.
- Where a use permit has established noise level standards for an existing use, those standards shall supersede the levels specified in Table 9-1 and Table 9-3 (see Table 14-4 and see Table 14-5). Similarly, where an existing use which is not subject to a use permit causes noise in excess of the allowable levels in Tables 9-1 and 9-3 (see Table 14-4 and see Table 14-5), said excess noise shall be considered the allowable level. If a new development is proposed which will be affected by noise from such an existing use, it will ordinarily be assumed that the noise levels already existing or those levels allowed by the existing use permit, whichever are greater, are those levels actually produced by the existing use.
- Existing industry located in industrial zones will be given the benefit of the doubt in being allowed to emit increased noise consistent with the state of the art<sup>5</sup> at the time of expansion. In no case will expansion of an existing industrial operation because to decrease allowable noise emission limits. Increased emissions above those normally allowable should be limited to a one-time 5 dB increase at the discretion of the decision-making body.
- The noise level standards applicable to land uses containing incidental residential uses, such as caretaker dwellings at industrial facilities and homes on agriculturally zoned land, shall be the standards applicable to the zone district, not those applicable to residential uses.
- Where no noise level standards have been provided for a specific zone district, it is assumed that the interior and/or exterior spaces of these uses are effectively insensitive to noise.

<sup>1</sup> Overriding policy on interpretation of allowable noise levels: Industrial-zoned properties are confined to unique areas of the County, and are irreplaceable. Industries which provide primary wage-earner jobs in the County, if

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**Table 14-4**  
**Allowable  $L_{dn}$  Noise Levels Within Specified Zone Districts**  
**Applicable to New Projects Affected by or Including Non-**  
**Transportation Noise Sources<sup>1</sup>**

forced to relocate, will likely be forced to leave the County. For this reason, industries operating upon industrial zoned properties must be afforded reasonable opportunity to exercise the rights/privileges conferred upon them be their zoning. Whenever the allowable noise levels herein fall subject to interpretation relative to industrial activities, the benefit of the doubt shall be afforded to the industrial use.

Where an industrial use is subject to infrequent and unplanned upset or breakdown of operations resulting in increased noise emissions, where such upsets and breakdowns are reasonable considering the type of industry, and where the industrial use exercises due diligence in preventing as well as correcting such upsets and breakdowns, noise generated during such upsets and breakdowns shall not be included in calculations to determine conformance with allowable noise levels.

<sup>2</sup> Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.

<sup>3</sup> Noise from industrial operations may be difficult to mitigate in a cost-effective manner. In recognition of this fact, the exterior noise standards for residential zone districts immediately adjacent to industrial, limited industrial, industrial park, and industrial reserve zone districts have been increased by 10 dB as compared to residential districts adjacent to other land uses.

For purposes of the Noise Element, residential zone districts are defined to include the following zoning classifications: AR, R-1, R-2, R-3, FR, RP, TR-1, TR-2, TR-3, and TR-4.

<sup>4</sup> Where a residential zone district is located within an -SP combining district, the exterior noise level standards are applied at the outer boundary of the -SP district. If an existing industrial operation within an -SP district is expanded or modified, the noise level standards at the outer boundary of the -SP district may be increased as described above in these standards.

Where a new residential use is proposed in an -SP zone, an Administrative Review Permit is required, which may require mitigation measures at the residence for noise levels existing and/or allowed by use permit as described under "NOTES," above, in these standards.

<sup>5</sup> State of the art should include the use of modern equipment with lower noise emissions, site design, and plant orientation to mitigate offsite noise impacts, and similar methodology.

<sup>6</sup> Normally, agricultural uses are noise insensitive and will be treated in this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones is a concern, an  $L_{dn}$  of 70 dBA will be considered acceptable outdoor exposure at a residence.

**Source: Placer County General Plan, 2013.**



**Table 14-5  
Maximum Allowable Noise Exposure for Transportation Noise  
Sources**

Noise Sensitive Land Uses	Outdoor Activity Area <sup>1</sup>	Interior Spaces	
	L <sub>dn</sub> , dB	L <sub>dn</sub> /CNEL, dB	Leq, dB <sup>2</sup>
Residential	60 <sup>3</sup>	45	--
Transient Lodging	60 <sup>3</sup>	45	--
Hospitals, Nursing Homes	60 <sup>3</sup>	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60 <sup>3</sup>	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--
<sup>1</sup> Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. <sup>2</sup> As determined for a typical worst-case hour during periods of use. <sup>3</sup> Where it is not possible to reduce noise in outdoor activity areas to 60 dB L <sub>dn</sub> /CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L <sub>dn</sub> /CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.			

Source: Placer County General Plan, 2013.

Policy 9.A.11

The County shall require one or more of the following mitigation measures where existing noise levels significantly impact existing noise-sensitive land uses, or where the cumulative increase in noise levels resulting from new development significantly impacts noise-sensitive land uses:

- Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses;
- Lowering speed limits, if feasible and practical;
- Programs to pay for noise mitigation such as low cost loans to owners of noise-impacted property or establishment of developer fees;
- Acoustical treatment of buildings; or,
- Construction of noise barriers.

Policy 9.A.12

Where noise mitigation measures are required to achieve the standards of Tables 9-1 and 9-3 (see Table 14-4 and Table 14-5), the emphasis of such measure shall be placed upon site planning and project design. The use of noise barriers shall be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.



## **Dry Creek-West Placer Community Plan**

The relevant goals and policies from the DCWPCC related to noise and vibration are presented below.

### Land Use

Goal 4 To locate noise sensitive land uses within areas of acceptable noise levels.

### Community Design Element

Goal 2 It is a goal of the Plan to encourage and support projects which exemplify good design characteristics when judged against the goals and policies of this Plan as well as other applicable design and landscape guidelines.

Policy 15 In place of sound wall construction, require, wherever possible, the use of greater setbacks to provide a scenic corridor for all parcels fronting on all the major circulation routes (2, 4, or 6 lanes of traffic). Long expanses of sound walls are not consistent with the desired character of the Plan area and the use of open space setbacks and landscaping instead, will be a major difference between this area and surrounding areas to the north and south.

### Noise Element

Goal 1 To protect the health, safety, and welfare of the Dry Creek-West Placer Area residents by providing a livable environment free from excessive noise.

Goal 2 Locate noise-sensitive land uses within areas of acceptable community noise equivalent levels (CNEL).

Goal 3 Correlate noise concerns with community design, land use, and circulation and open space.

Policy 1 Encourage the use of green belts or natural areas along roadways as a design feature of any development in order to mitigate noise impacts.

Policy 2 Continue a program of monitoring noise sources to assure conformance with noise standards adopted in the Placer County Noise Element.

Policy 3 Avoid the interface of noise-producing and noise-sensitive land uses.

Policy 4 Require implementation of noise abatement techniques within new projects where warranted.

Policy 5 Require traffic noise mitigation for low-density residential land uses located along major arterials.





Policy 6	Require project specific noise studies for most commercial, office, public, institutional and residential projects.
Policy 7	Limit construction activities to daytime hours (7:00 a.m. to 7:00 p.m. Monday through Friday).
Policy 8	Where noise levels have a potential to be in excess of normally acceptable CNEL levels, landscaped setbacks should be considered versus sound walls for noise mitigation.
Policy 11	Protect existing residential areas from excessive noise levels generated by the development of the Plan Area.
Policy 12	The burden of noise mitigation measures shall be borne by project proponents whenever the temporary and permanent effects of land development should cause noise levels to be in excess of normally acceptable levels for surrounding uses.
Policy 13	The location and design of transportation facilities shall be developed in a manner which minimizes the effects of noise on adjacent land uses.

### Placer County Noise Ordinance

Section 9.36.060 of the Placer County Code establishes non-transportation noise level standards for noise-sensitive receptors. The purpose of the Noise Ordinance is to implement the noise level standards identified in the *Placer County General Plan*. The specific language of Section 9.36.060 is provided below:

- A. It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:
1. Causes the exterior sound levels when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by five (5) dBA or
  2. Exceeds the sound level standards as set forth in Table 1 (see Table 14-6), whichever is the greater.

<b>Table 14-6</b> <b>Noise Level Standards for Non-Transportation</b> <b>Noise Sources</b>		
<b>Sound Level Descriptor</b>	<b>Daytime (7 AM to 10 PM)</b>	<b>Nighttime (10 PM to 7 AM)</b>
Hourly $L_{eq}$ , dB	55	45
$L_{max}$ , dB	70	65
<b>Source: Placer County Noise Ordinance.</b>		



- B. Each of the sound level standards specified in Table 1 (see Table 14-6) shall be reduced by five (5) dB for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus five (5) dB.
- C. If the intruding sound source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient sound level can be measured, the sound level measured while the source is in operation shall be compared directly to the sound level standards of Table 1 (see Table 14-6).

Pursuant to Section 9.36.030 of the Placer County Code (Exemptions), sound or noise emanating from construction activities between the hours of 6:00 AM and 8:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday, is exempt from Section 9.36.060 of the Placer County Code Noise Ordinance, provided that all construction equipment is fitted with factory installed muffling devices and that all construction equipment is maintained in good working order. However, the hours of construction were modified in the Planning Commission revisions to the Placer County Board of Supervisors Minute Order 90-08 and, thus, the following standards are applicable to the proposed project:

Construction noise emanating from any construction activities for which a Grading or Building Permit is required is prohibited on Sundays and Federal Holidays, and shall only occur: a) Monday through Friday, 6:00 a.m. to 8:00 p.m. (during daylight savings) b) Monday through Friday, 7:00 a.m. to 8:00 p.m. (during standard time) c) Saturdays, 8:00 a.m. to 6:00 p.m.

In addition, temporary signs shall be located throughout the project, as determined by the Development Review Committee, at key intersections depicting the above construction hour limitations.

### **City of Roseville Noise Regulation**

Pursuant to Roseville Municipal Code Chapter 9.24, the City of Roseville prohibits unnecessary, excessive, and annoying sound levels from all sources. The City's Noise Regulations works in concert with and supplements California Penal Code Section 370 (Public Nuisances) and Section 415 (Disturbing the Peace) to establish local community standards pertaining to noise.

Roseville Municipal Code Section 9.24.030 establishes exceptions to the Noise Regulation, including private construction that occurs between the hours of 7:00 AM and 7:00 PM, Monday through Friday, and between the hours of 8:00 AM and 8:00 PM, Saturday and Sunday. As part of the exemption, the City of Roseville requires that all construction equipment be fitted with factory-installed muffling devices and that all construction equipment be maintained in good working order.

## **14.4 IMPACTS AND MITIGATION MEASURES**

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to noise and vibration. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required California Environmental Quality Act (CEQA) review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the



significant effects of the environment on the project.” (*Ballona Wetlands Land Trust v. City of Los Angeles*, [2011] 201 Cal.App.4th 455, 473 [*Ballona*]). The California Supreme Court has held that “CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project’s future users or residents. What CEQA does mandate... is an analysis of how a project might exacerbate existing environmental hazards.” (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* [2015] 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* [2016] 6 Cal.App.5th 160, 197 [“identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA’s legislative purpose nor required by the CEQA statutes”], quoting *Ballona, supra*, 201 Cal.App.4th at p. 474). Therefore, for the purposes of the CEQA analysis, the relevant inquiry is not whether the proposed project’s future residents will be exposed to pre-existing environmental noise-related hazards, but instead whether project-generated noise would exacerbate the pre-existing conditions. Nonetheless, for informational purposes, this chapter considers both the proposed project’s contribution to on- and off-site noise levels, as well as exposure of future residents of the proposed project to potential hazards associated with the preexisting noise environment, in order to demonstrate General Plan compliance.

### **Standards of Significance**

Consistent with Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the purposes of this EIR, an impact is considered significant if the proposed project would result in any of the following:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels (see Chapter 19, Effects Not Found to be Significant).

As noted above, impacts related to exposure of people to airport noise levels are discussed in Chapter 19, Effects Not Found to be Significant, of this EIR.

### **Summary of Applicable Noise Standards**

Applicable noise level standards from the Placer County General Plan and the Placer County Code are summarized below.

### **Transportation Noise**

The Placer County General Plan Noise Element applies 60 dB L<sub>dn</sub>/CNEL exterior and 45 dB L<sub>dn</sub>/CNEL interior noise level standards for residential uses affected by transportation noise sources. The County may conditionally allow exterior noise levels between 60 and 65 dB L<sub>dn</sub> for residential uses, provided that practical noise reduction measures have been implemented and interior noise levels remain in compliance with the 45 dB L<sub>dn</sub> interior standard.



## Substantial Increase Criteria

Generally, a project may have a significant effect on the environment if it substantially increases the ambient noise levels for adjoining areas or exposes people to measurably severe noise levels. In practice, a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in transportation noise associated with the proposed project is a factor in determining significance.

Placer County, like many jurisdictions, does not have an adopted policy regarding significant increases in ambient noise. A common practice in many jurisdictions is to use a 3.0 to 5.0 dB increase as a threshold of significance. However, a limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions.

The following table was developed by the Federal Interagency Committee on Noise (FICON) as a means of developing thresholds for identifying project-related noise level increases. The rationale for the graduated scales is that test subjects' reactions to increases in noise levels varied depending on the starting level of noise. Specifically, with lower ambient noise environments, such as those below 60 dB  $L_{dn}$ , a larger increase in noise levels was required to achieve a negative reaction than was necessary in environments where noise levels were already elevated. Therefore, because the County does not have defined thresholds for what would be considered a substantial increase in traffic noise levels, information from Table 14-7 is used. The approach to assessing the significance of increases in off-site traffic noise is also consistent with other recent Placer County EIRs and the industry-standard approach in general.

<b>Table 14-7</b>	
<b>Significance of Changes in Cumulative Noise Exposure (dB DNL)</b>	
<b>Ambient Noise Level Without Project</b>	<b>Increase Required for Significant Impact</b>
<60	+5.0 or more
60 to 65	+3.0 or more
>65	+1.5 or more
<i>Source: Federal Interagency Committee on Noise.</i>	

The use of the FICON standards is considered conservative relative to thresholds used by other agencies in the State. For example, Caltrans requires a project-related traffic noise level increase of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project-related noise level increases between 5.0 to 10 dB significant, depending on local factors. Therefore, the use of the FICON standards, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a conservative approach to impact assessment for the proposed project.

## Vibration

Placer County does not have specific policies or standards pertaining to vibration levels. However, vibration levels associated with construction activities and project operations are addressed as potential vibration impacts associated with project implementation. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events.

Construction operations have the potential to result in varying degrees of temporary ground vibration depending on the specific construction equipment used and operations involved. Table





14-8 and Table 14-9 present the Caltrans guidance criteria for building structure vibration and vibration annoyance potential, respectively.

<b>Table 14-8</b>	
<b>Caltrans Guidance Criteria for Building Structure Vibration</b>	
<b>Structure and Condition</b>	<b>Limiting PPV (in/sec)</b>
Historic and Some Old Buildings	0.5
Residential Structures	0.5
New Residential Structures	1.0
Industrial Buildings	2.0
Bridges	2.0
<i>Source: Caltrans Transportation and Construction Vibration Guidance Manual, Table 14, 2020.</i>	

<b>Table 14-9</b>		
<b>Caltrans Guidance Criteria for Vibration Annoyance Potential</b>		
<b>Human Response</b>	<b>Maximum PPV (in/sec)</b>	
	<b>Transient Sources</b>	<b>Continuous/Frequent Intermittent Sources</b>
Severe/Very Disturbing	2.0	0.4 to 3.6
Strongly Perceptible	0.9	0.1
Distinctly Perceptible	0.24	0.035
Barely/Slightly Perceptible	0.035	0.012
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent sources include pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers and vibratory compaction equipment.		
<i>Source: Caltrans Transportation and Construction Vibration Guidance Manual, Tables 4 &amp; 6, 2020.</i>		

A significant impact would be identified if project construction activities or proposed on-site operations would expose sensitive receptors to excessive groundborne vibration levels. Specifically, an impact would be identified if groundborne vibration levels due to such sources would exceed the Caltrans vibration impact criteria of 0.5 PPV in/sec for damage to residential structures and 0.24 PPV in/sec for annoyance potential.

### **Method of Analysis**

Below are descriptions of the methodologies used in the Noise Assessment (see Appendix K of this EIR) to measure background and ambient noise and estimate future traffic noise, construction noise, and vibration associated with the project. Further modeling details and calculations are provided in Appendix K of this EIR. The results of the noise and vibration impact analyses were compared to the standards of significance discussed above in order to determine the associated level of impact.

To quantify existing ambient noise levels within the project site, BAC conducted long-term (72-hour) ambient noise level measurements at five locations (see Figure 14-2) from July 13 to July 15, 2021. Larson Davis Laboratories (LDL) Model 820 and LxT precision integrating sound level meters were used to complete the long-term noise level survey. The meters were calibrated immediately before and after use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all specifications of the American National Standards Institute requirements for Type 1 sound level meters (ANSI S1.4). The results



of the long-term ambient noise survey are shown numerically and graphically in Appendices D and E of the Noise Assessment, respectively, and are summarized in Table 14-1 above.

The FHWA-RD-77-108 traffic noise model was used to develop existing noise contours, expressed in DNL, for major roadways within the project vicinity. The FHWA Model predicts hourly  $L_{eq}$  values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop DNL values from  $L_{eq}$  values. Average daily traffic (ADT) volumes for Existing, Existing Plus Project, Cumulative, and Cumulative Plus Project conditions were obtained from KD Anderson & Associates, Inc., the transportation consultant for the proposed project. Using such data and the FHWA Model, existing traffic noise levels along roadways within the project vicinity roadway network were calculated. The traffic noise level at 100 feet from the roadway centerline and distances from the centerlines of selected roadways to the 60 dB DNL, 65 dB DNL, and 70 dB DNL contours are summarized in Table 14-2. A complete listing of the FHWA Model inputs for existing conditions are provided in Appendix B of the Noise Assessment. In many cases, the actual distances to noise level contours may vary from the distances predicted by the FHWA Model. Factors such as roadway curvature, roadway grade, shielding by way of local topography or structures, elevated roadways, or elevated receivers may affect actual sound propagation. In addition, existing sensitive land uses within the project vicinity are located at varying distances from the centerlines of the local roadway network. The 100-foot reference distance is used in the Noise Assessment to provide a reference position at which changes in existing and future traffic noise levels resulting from the proposed project can be evaluated. The FHWA Model was used with traffic input data to predict project traffic noise level increases relative to Existing and Cumulative conditions, both with and without the proposed project.

BAC conducted short-term (10-minute) vibration measurements at the five survey locations identified on Figure 14-2 on July 15, 2021. A LDL Model LxT precision integrating sound level meter equipped with a vibration transducer was used to complete the measurements. The results are summarized in Table 14-3.

Construction noise and vibration was analyzed using data compiled for various pieces of construction equipment at representative distances of 50 and 25 feet, respectively. Construction noise is discussed relative to the applicable Placer County noise policies and standards.

It should be noted that in addition to the 597 single-family residential units included in the proposed project, the Project Description chapter of this EIR recognizes the potential for up to 60 additional on-site residential units (Accessory Dwelling Units [ADUs]) to be included in the proposed project in order to meet the County's affordable housing requirements. The ADT volumes obtained from KD Anderson & Associates, Inc. incorporated new vehicle trips that would be generated by the 60 ADUs in addition to the 597 single-family residential units. As such, the analyses presented herein provides a conservative assessment of traffic noise generated by the anticipated maximum number of future residents of the proposed project.

### **Project-Specific Impacts and Mitigation Measures**

The following discussion of impacts is based on implementation of the proposed project in comparison with the baseline and standards of significance identified above.



**14-1 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below, the impact is *less than significant*.**

Construction activities associated with the proposed project, including off-site improvements, would require the use of numerous pieces of noise-generating equipment, such as excavating machinery (e.g., backhoes, bulldozers, excavators, front loaders) and other construction equipment (e.g., compactors, scrapers, graders). Construction worker traffic and construction-related material haul trips would raise ambient noise levels along local haul routes, depending on the number of haul trips made and types of vehicles used.

The following discussions address the potential temporary increases in ambient noise levels from the proposed project on the surrounding environment due to on-site and off-site construction activities.

**On-Site Construction Noise at Existing Noise-Sensitive Receptors**

During project construction, heavy equipment would be used for grading, excavation, paving, and structure construction, all of which would temporarily increase ambient noise levels when in use. Noise levels would vary depending on the type and operation of equipment and how well the equipment is maintained. Noise exposure at any single point outside the project site would also vary depending on the distance from the source. While the nearest existing noise-sensitive use (residential) is located approximately 15 feet from the Schellhous parcel's western boundary, the nearest residence would be located approximately 75 feet away from where on-site construction activities could potentially occur based on the Conceptual Site Plan and Vesting Tentative Map.

Table 14-10 includes the range of maximum noise levels ( $L_{max}$ ) for equipment commonly used in general residential construction projects at full-power operation at a distance of 50 feet. It should be noted that not all of the listed equipment would be required for the proposed project construction. Predicted maximum noise levels at the nearest residential uses located approximately 75 feet away from where on-site construction would occur are also included in the table, which assume a standard spherical spreading loss of 6.0 dB per doubling of distance from the noise source.

Placer County Code Section 9.36.030(A)(7) exempts noise sources associated with construction activities, provided that such activities occur between the hours of 6:00 AM and 8:00 PM, Monday through Friday (during daylight savings), 7:00 AM and 8:00 PM, Monday through Friday (during standard time), and 8:00 AM and 6:00 PM, Saturday. However, the exemption is provided on the basis that all construction equipment is fitted with factory-installed muffling devices and maintained in good working order. It is reasonably assumed that all noise-generating project construction equipment and activities would occur pursuant to Placer County Code Section 9.36.030(A)(7) and would, thereby, be exempt from the applicable noise level criteria. Notwithstanding, Appendix G of the CEQA Guidelines (Section XIII, question 'a') requires a lead agency to determine if a project would result in the generation of a substantial temporary increase in ambient noise levels. In terms of determining the temporary noise increase due to project-related construction activities, an impact would occur if construction activity would noticeably



increase ambient noise levels above background levels. The threshold of perception of the human ear is approximately 3.0 to 5.0 dB, and a 5.0 dB change is considered to be clearly noticeable. Therefore, for the purposes of this analysis, a noticeable increase in existing ambient noise levels is assumed to occur when noise levels increase by 5.0 dB or more.

<b>Table 14-10 Noise Levels for Typical Residential Construction Equipment</b>		
<b>Equipment Description</b>	<b>Maximum Noise Level at 50 Feet (dBA)</b>	<b>Projected Maximum Noise Level at 75 Feet (dBA)</b>
Air Compressor	80	76
Backhoe	80	76
Ballast Equalizer	82	78
Ballast Tamper	83	79
Compactor	82	78
Concrete Mixer	85	81
Concrete Pump	82	78
Concrete Vibrator	76	72
Crane, Mobile	83	79
Dozer	85	81
Excavator	85	81
Generator	82	78
Grader	85	81
Impact Wrench	85	81
Loader	80	76
Paver	85	81
Pneumatic Tool	85	81
Pump	77	73
Saw	76	72
Scarifier	83	79
Scraper	85	81
Shovel	82	78
Tie Cutter	84	80
Tie Handler	80	76
Tie Inserter	85	81
Truck	84	80
<b>Low</b>		<b>72</b>
<b>High</b>		<b>81</b>
<b>Average</b>		<b>79</b>
<i>Source: Bollard Acoustical Consultants, Inc., 2022.</i>		

Measurements obtained at the five noise monitoring sites are believed to be generally representative of the ambient noise level environment within the project vicinity (see Table 14-1). Based on the noise monitoring results, lower noise levels were measured at monitoring locations farther removed from local major roadways within the area (Sites 1 and 5). Higher noise levels were measured at monitoring locations along the major roadways (Sites 2 through 4). To determine the temporary noise increases from project-generated construction activities at existing noise-sensitive uses, a baseline of ambient noise conditions at such locations must be established. For the purposes of this analysis, the existing noise-sensitive uses located nearest to the project site (north of PFE Road





and east of Cook Riolo Road, further from major roadways) were reasonably assumed to currently experience ambient noise levels similar to those measured at Sites 1 and 5.

Pursuant to the Noise Assessment, the highest measured daytime maximum noise levels at Sites 1 and 5 ranged from 72 to 82 dB  $L_{max}$  (arithmetic mean of 77 dB  $L_{max}$ ) (see Appendices D and E of the Noise Assessment, included in Appendix K of this EIR). Given the calculated means of measured daytime maximum noise levels at Sites 1 and 5 and worst-case construction equipment maximum noise levels of 79 dB  $L_{max}$  (see Table 14-10), the ambient plus project noise level exposure at the nearest existing residence would be 81 dB  $L_{max}$ , which would be equivalent to an increase of 3.9 dB  $L_{max}$ . Such an increase would be below the applied increase significance criterion of 5.0 dB. Therefore, noise impacts associated with the temporary increase in ambient noise levels from project on-site construction activities at the nearest sensitive receptors would be less than significant.

### On-Site Lift Station Construction Noise at Existing Noise-Sensitive Receptors

Similar to the temporary noise level increases that would occur due to construction activities associated with the proposed residences, heavy equipment associated with construction of the on-site lift station would temporarily increase existing ambient noise levels, with noise increases dependent on the factors previously described (i.e., equipment type, operation, and maintenance). As shown in Figure 3-8 of the Project Description chapter, three alternative locations, Options 1, 2, and 3, have been proposed for the lift station. The nearest existing noise-sensitive receptor to Option 1 is a residence approximately 2,000 feet to the north, across from Dry Creek. The nearest existing receptor to Option 2 is a residence near Glaser Lane, approximately 300 feet away, and the nearest existing sensitive receptor to Option 3 is a residence approximately 1,800 feet away, near the PFE Road/Antelope Road intersection.

Table 14-11 includes the range of maximum ( $L_{max}$ ) noise levels for equipment commonly used in construction projects at full-power operation at a distance of 50 feet. The table also includes predicted maximum equipment noise levels at the nearest identified sensitive receptors (residences) to lift station Options 1, 2, and 3, which assume a standard spherical spreading loss of 6.0 dB per doubling of distance.

As discussed, measurements obtained at the five noise monitoring sites are generally representative of the ambient noise level environment within the project vicinity (see Table 14-1). For the purposes of this analysis, existing noise-sensitive uses further from major roadways were reasonably assumed to currently experience ambient noise levels similar to those measured at Sites 1 and 5, and existing noise-sensitive uses along major roadways were assumed to experience ambient noise levels similar to those measured at Sites 2 through 4. Based on the above assumptions, the ambient noise level data from Sites 1 and 5 were assigned to the existing residences located closest to the footprints of Options 1 and 2. Ambient noise levels measured at Sites 2 through 4 were assigned to the nearest existing residence to the footprint of Option 3.



**Table 14-11  
On-Site Lift Station Construction Noise Levels**

Equipment	Noise Level at 50 Feet (dB)	Predicted Maximum Noise Levels Nearest Existing Receptors (dB)		
		Option 1 (2,000 Feet)	Option 2 (300 Feet)	Option 3 (1,800 Feet)
Backhoe	80	48	64	49
Compactor	82	50	66	51
Concrete Mixer Truck	85	53	69	54
Concrete Pump	82	50	66	51
Concrete Vibrator	76	44	60	45
Crane, Mobile	83	51	67	52
Dozer	85	53	69	54
Dump Truck	82	50	66	51
Flatbed Truck	84	52	68	53
Front End Loader	80	48	64	49
Paver	85	53	69	54
Pump	77	45	61	46
Saw	76	44	60	45
Shovel	82	50	66	51
Pickup Truck	84	52	68	53
<b>Low</b>		<b>44</b>	<b>60</b>	<b>45</b>
<b>High</b>		<b>53</b>	<b>69</b>	<b>54</b>
<b>Average</b>		<b>49</b>	<b>66</b>	<b>50</b>

*Source: Bollard Acoustical Consultants, Inc., 2022.*

Pursuant to the Noise Assessment, the highest measured daytime maximum noise levels at Sites 1 and 5 ranged from 72 to 82 dB  $L_{max}$  (arithmetic mean of 77 dB  $L_{max}$ ) (see Appendices D and E of the Noise Assessment). The highest measured daytime maximum noise levels at Sites 2 through 4 ranged from 76 to 95 dB  $L_{max}$  (arithmetic mean of 86 dB  $L_{max}$ ). Given the calculated means of measured daytime maximum noise levels at Sites 1 and 5 and worst-case construction equipment maximum noise levels from the Option 1 footprint of 49 dB  $L_{max}$  (see Table 14-11), the ambient plus project noise level exposure would be approximately 77 dB  $L_{max}$  at the nearest existing residence to the Option 1 work area. Similarly, based on the calculated means of measured daytime maximum noise levels at Sites 1 and 5 and worst-case construction equipment maximum noise levels from the Option 2 work area of 66 dB  $L_{max}$ , the ambient plus project noise level exposure would be approximately 77 dB  $L_{max}$  at the nearest existing residence to the Option 2 work area. Finally, given the calculated means of measured daytime maximum noise levels at Sites 2 through 4 and worst-case construction equipment maximum noise levels from the Option 3 work area of 50 dB  $L_{max}$ , the ambient plus project noise level exposure would be approximately 86 dB  $L_{max}$  at the nearest existing residence to the Option 3 work area. The ambient plus project noise levels cited above would be equivalent to increases of less than 1.0 dB  $L_{max}$  at the nearest existing residences to the on-site infrastructure improvement work areas, which would be below the applied increase significance criterion of 5.0 dB. As such, noise impacts associated with the proposed lift station construction activities at the nearest existing sensitive receptors would be less than significant.



### Off-Site Sewer Pipeline Construction Noise at Existing Noise-Sensitive Receptors

The proposed project includes three off-site sewer pipeline alignment options, identified as Options 1A, 1B, and 1C on Figure 3-8 in the Project Description chapter of this EIR. Heavy equipment associated with the off-site construction activities would temporarily increase existing ambient noise levels, with noise increases dependent on the factors previously described (i.e., equipment type, operation, and maintenance). It should be noted that noise exposure would also vary relative to the proximity to the noise source, which would be dictated by the sewer pipeline alignment option that is ultimately chosen. The nearest existing residence to the Option 1A alignment is located approximately 1,200 feet away, south of Vineyard Road and north of Dry Creek. The nearest existing residence to the Option 1B alignment is located approximately 300 feet away, to the east of the Dry Creek Wastewater Treatment Plant (WWTP), off of Booth Road. Finally, the nearest existing residence to the Option 1C alignment is located adjacent to Atkinson Road, approximately 50 feet away.

Table 14-12 includes the range of maximum noise levels ( $L_{max}$ ) for equipment that may be used for the off-site sewer pipeline construction at full-power operation, at a distance of 50 feet. Predicted maximum equipment noise levels at the nearest identified sensitive receptors (residences) to each pipeline alignment option are also included and assume a standard spherical spreading loss of 6.0 dB per doubling of distance. Average noise levels associated with such activities are dependent upon equipment type, activity duration, and, therefore, tend to be highly variable. Thus, this analysis focuses only on maximum noise levels associated with construction equipment.

<b>Table 14-12</b>				
<b>Off-Site Pipeline Alignment Construction Noise Levels</b>				
<b>Equipment</b>	<b>Noise Level at 50 Feet (dB)</b>	<b>Predicted Maximum Noise Levels Nearest Receptors (dB)</b>		
		<b>Option 1A (1,200 Feet)</b>	<b>Option 1B (300 Feet)</b>	<b>Option 1C (50 Feet)</b>
Backhoe	80	52	64	80
Compactor	82	54	66	82
Concrete Mixer Truck	85	57	69	85
Concrete Pump	82	54	66	82
Concrete Vibrator	76	48	60	76
Crane, Mobile	83	55	67	83
Dozer	85	57	69	85
Dump Truck	82	54	66	82
Flatbed Truck	84	56	68	84
Front End Loader	80	52	64	80
Paver	85	57	69	85
Pump	77	49	61	77
Saw	76	48	60	76
Shovel	82	54	66	82
Pickup Truck	84	56	68	84
<b>Low</b>		<b>48</b>	<b>60</b>	<b>76</b>
<b>High</b>		<b>57</b>	<b>69</b>	<b>85</b>
<b>Average</b>		<b>54</b>	<b>66</b>	<b>82</b>
<i>Source: Bollard Acoustical Consultants, Inc., 2022.</i>				



As discussed, measurements obtained at the five noise monitoring sites are generally representative of the ambient noise level environment within the project vicinity (see Table 14-1). For the purpose of this analysis, existing noise-sensitive uses further from major roadways were reasonably assumed to currently experience ambient noise levels similar to those measured at Sites 1 and 5, and existing noise-sensitive uses along major roadways were assumed to experience ambient noise levels similar to those measured at Sites 2 through 4. Based on the above assumptions, the ambient noise level data from Sites 1 and 5 were assigned to the existing residences located closest to the pipeline alignments of Options 1A and 1B and the ambient noise levels measured at Sites 2 through 4 were assigned to the nearest existing residence to the alignment of Option 1C.

Pursuant to the Noise Assessment, the highest measured daytime maximum noise levels at Sites 1 and 5 ranged from 72 to 82 dB  $L_{max}$  (arithmetic mean of 77 dB  $L_{max}$ ) (see Appendices D and E of the Noise Assessment). The highest measured daytime maximum noise levels at Sites 2 through 4 ranged from 76 to 95 dB  $L_{max}$  (arithmetic mean of 86 dB  $L_{max}$ ). Given the calculated means of measured daytime maximum noise levels at Sites 1 and 5 and worst-case construction equipment maximum noise levels from the Option 1A work area of 54 dB  $L_{max}$  (see Table 14-12), the ambient plus project noise level exposure would be approximately 77 dB  $L_{max}$  at the nearest existing residence to the Option 1A work area. Similarly, based on the calculated means of measured daytime maximum noise levels at Sites 1 and 5 and worst-case construction equipment maximum noise levels from the Option 1B work area of 66 dB  $L_{max}$ , the ambient plus project noise level exposure would be approximately 77 dB  $L_{max}$  at the nearest existing residence to the Option 1B work area. Finally, given the calculated means of measured daytime maximum noise levels at Sites 2 through 4 and worst-case construction equipment maximum noise levels from the Option 1C work area of 82 dB  $L_{max}$ , the ambient plus project noise level exposure would be approximately 87 dB  $L_{max}$  at the nearest existing residence to the Option 1C work area. The ambient plus project noise levels cited above would be equivalent to increases ranging from less than 1.0 to 1.5 dB  $L_{max}$  at the nearest existing residences to the off-site infrastructure improvement work areas, which would be below the applied increase significance criterion of 5.0 dB. Based on the above, because the project-generated noise level increase in daytime maximum noise levels associated with construction of any of the off-site pipeline alignment options would be below the applied increase significance criterion of 5.0 dB at the nearest existing residence, temporary ambient noise level increases from the off-site project construction activities would be less than significant.

### Conclusion

Based on the above, worst-case, maximum project construction noise levels associated with on-site and off-site construction activities would not result in a significant noise level increase to the nearest receptor. Therefore, the proposed project would not generate a substantial temporary increase in ambient noise levels in the project vicinity in excess of applicable standards, and a **less-than-significant** impact would occur.

Nevertheless, because Placer County Code Section 9.36.030(A)(7) requires that all construction equipment be fitted with factory-installed muffling devices and maintained in good working order, the County would require the following conditions of project approval to ensure consistency with the Placer County Noise Ordinance and City of Roseville noise standards:





1. The following criteria shall be included in the Improvement Plans. Exceptions to allow expanded construction activities shall be reviewed on a case-by-case basis as determined by the Community Development Resource Agency Director.
  - Noise-generating construction activities (e.g., construction, alteration or repair activities), including truck traffic coming to and from the project site for any purpose, shall be limited to the hours outlined in Placer County Board of Supervisors Minute Order 90-08; specifically, a) Monday through Friday, 6:00 AM to 8:00 PM (during daylight savings); b) Monday through Friday, 7:00 AM to 8:00 PM (during standard time); and c) Saturdays, 8:00 AM to 6:00 PM.
  - Off-site construction activities occurring within the City of Roseville shall be limited to the following time periods: a) Monday through Friday, 7:00 AM to 7:00 PM; and b) weekends/State and federal holidays, 8:00 AM to 8:00 PM.
  - All mobile or fixed noise-producing equipment used on the project site that are regulated for noise output by a federal, State, or local agency shall comply with such regulations while in the course of project activity.
  - Electrically powered equipment shall be used instead of pneumatic or internal combustion-powered equipment, where feasible.
  - Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
  - Construction site and access road speed limits shall be established and enforced during the construction period.
  - Nearby residences shall be notified of construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.

Mitigation Measure(s)

*None required.*

**14-2 Generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below, the impact is *less than significant*.**

Given the residential nature of the proposed project, the primary source of noise associated with the proposed residential development would be project-generated traffic noise on local roadways. As discussed previously, CEQA does not require an analysis of the environment's impact on the project; however, impacts to future residents of the proposed project due to traffic noise along local roadways, UPRR operations, and existing industrial uses in the project vicinity are evaluated for the purposes of considering the project's consistency with policies in the Placer County General Plan.

Traffic Noise at Existing Noise-Sensitive Receptors

Using the methodology described above in the Method of Analysis section, traffic noise levels under Existing and Existing Plus Project conditions were estimated as part of the Noise Assessment and are shown in Table 14-13. The estimated noise levels are provided



in terms of DNL at a standard distance of 100 feet from the centerline of the selected roadways. In addition, the table includes an assessment of predicted traffic noise levels relative to the FICON noise level increase significance criteria presented in Table 14-7.

As shown in Table 14-13, the increase in traffic noise levels attributable to the proposed project under Existing Plus Project conditions would be below the FICON increase significance criteria shown in Table 14-7. Therefore, the increase in traffic noise levels at existing sensitive receptors due to the proposed project would be considered less than significant.

<b>Table 14-13</b>					
<b>Traffic Noise Under Existing and Existing Plus Project Conditions</b>					
<b>Roadway</b>	<b>Segment</b>	<b>Noise Levels at 100 Feet, DNL (dB)</b>			<b>Substantial Increase</b>
		<b>E</b>	<b>E+P</b>	<b>Increase</b>	
Cook Riolo Road	Vineyard Road to Creekview Ranch School	57.5	57.8	0.3	No
	Creekview Ranch School to PFE Road	57.0	57.4	0.4	No
PFE Road	Walerga Road to Cook Riolo Road	60.4	61.0	0.6	No
	Cook Riolo Road to Antelope Road	61.4	62.1	0.7	No
	Antelope Road to Hilltop Circle	62.6	64.0	1.4	No
Atkinson Street	Hilltop Circle to Denio Loop	65.5	66.2	0.7	No
Antelope Road	PFE Road to Great Valley Drive	62.0	62.9	0.9	No
	Great Valley Drive to Poker Lane	63.6	64.2	0.6	No
<b>Source: Bollard Acoustical Consultants, Inc., 2022.</b>					

### Traffic Noise at Proposed Residences

Cumulative noise level conditions represent the worst-case future noise environment at the project site. Any design for sound walls would need to be based on the worst-case condition. Accordingly, in order to evaluate the impacts of traffic noise on the proposed project, the required sound walls would be designed based on the noise levels that would occur under the Cumulative Plus Project conditions.

Using the methodology described above in the Method of Analysis section, traffic noise levels under Cumulative Plus Project conditions were estimated and are summarized in Table 14-14.



Table 14-14			
Estimated Traffic Noise at Proposed Residences			
Roadway	Project Component	Receiver Location	Exterior DNL (dB) <sup>1</sup>
PFE Road	Village 1A	Nearest Backyards	67
		Nearest First-Floor Facades	66
		Nearest Upper-Floor Facades	68
	Village 2C	Nearest Backyards	65
		Nearest First-Floor Facades	64
		Nearest Upper-Floor Facades	66
PFE Road	Village 3A	Nearest Backyards	66
		Nearest First-Floor Facades	65
		Nearest Upper-Floor Facades	67
	Village 3B	Nearest Backyards	68
		Nearest First-Floor Facades	67
		Nearest Upper-Floor Facades	69
	Village 4A	Nearest Backyards	67
		Nearest First-Floor Facades	66
		Nearest Upper-Floor Facades	68
Antelope Road	Village 4A	Nearest Backyards	69
		Nearest First-Floor Facades	68
		Nearest Upper-Floor Facades	70
	Village 4B	Nearest Backyards	69
		Nearest First-Floor Facades	68
		Nearest Upper-Floor Facades	70

<sup>1</sup> A +2.0 dB offset was applied at upper-floor building facades to account for reduced ground absorption of sound at elevated positions.

Source: Bollard Acoustical Consultants, Inc., 2022.

### Exterior Traffic Noise

As indicated in Table 14-14, future PFE Road and Antelope Road traffic noise level exposure is predicted to exceed the applicable Placer County General Plan Policy 9.A.2 60 dB DNL exterior noise level standard at the nearest proposed outdoor activity areas (backyards) to the roadways. However, pursuant to Note 3 in Table 14-5, the County may conditionally allow an exterior noise level of up to 65 dB DNL, provided that available exterior noise level reduction measures have been implemented and interior noise levels comply with the County's 45 dB L<sub>dn</sub> interior noise level standard. Based upon this, the County will allow an exterior noise level of up to 65 dB DNL at the proposed residential backyard areas.

Exceedances of the exterior noise level standard at the proposed residences would constitute the existing environment's effect on the project, which is not considered an impact under CEQA. In order to address such noise levels, the County would require the following conditions of project approval to ensure consistency with the County's noise standards at the proposed outdoor activity areas:

1. Prior to building permit issuance for the proposed villages adjacent to PFE Road and/or Antelope Road, the Improvement Plans shall show the traffic noise barriers at the heights and locations illustrated on Figure 14-3. The traffic noise barriers



would reduce future PFE Road and Antelope Road traffic noise levels to the conditionally acceptable 65 dB DNL standard, or less, at the nearest backyards, satisfying the Placer County General Plan applicable exterior noise level standard at such locations. The traffic noise barrier heights indicated in Figure 14-3 are relative to lot elevation. The noise barriers shall take the form of a masonry wall, earthen berm, or combination of the two. Other materials may be acceptable, and shall be reviewed by an acoustical consultant, prior to approval and construction.

### *Interior Traffic Noise*

Exterior traffic noise levels would be 65 dB DNL or less at the first-floor facades of the proposed residences constructed nearest to PFE Road and Antelope Road following construction of the recommended traffic noise barriers. Due to reduced ground absorption at elevated positions and a lack of shielding provided by the noise barriers, traffic noise levels would range from 66 to 70 dB DNL at the upper-floor facades of such residences. Accordingly, to satisfy the applicable 45 dB DNL interior noise level standard set forth by General Plan Policy 9.A.2, minimum noise reductions of 20 dB and 25 dB would be required for the first- and upper-floor building facades, respectively, of residences adjacent to the roadways.

With respect to interior noise levels, modern construction typically provides a 25 dB exterior-to-interior noise level reduction with windows closed and a 15 dB reduction with windows open. As such, sensitive receptors exposed to exterior noise levels of 70 dB  $L_{dn}$ , or less, would typically comply with the County's 45 dB  $L_{dn}$  interior noise level standard. Standard construction practices would be sufficient to reduce interior noise levels for first-floor facades nearest to the roadways to below the 45 dB threshold, but would not be sufficient to provide for a margin of safety within a portion of the upper floors of units closest to the roadways.

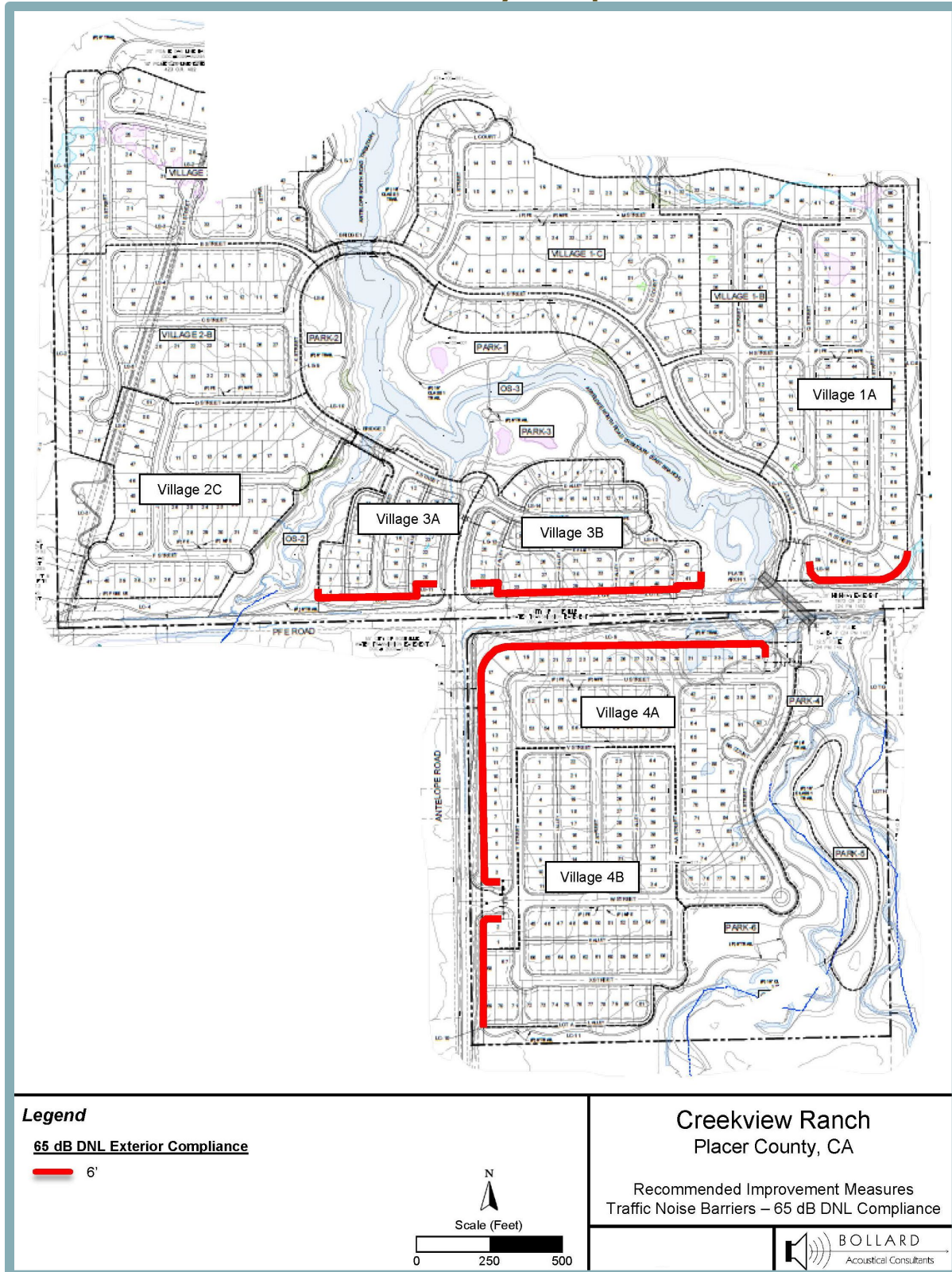
In order to ensure interior noise levels at the proposed residences would comply with the General Plan's 45 dB interior noise level standards, including a factor of safety, the County would require the following condition of project approval:

1. Prior to building permit issuance for proposed residential lots adjacent to PFE Road and/or Antelope Road, the building plans shall show that all upper-floor windows of the residences identified on Figure 14-4 with a view of the adjacent roadway (i.e., PFE Road or Antelope Road) would be upgraded to a minimum Sound Transmission Class (STC) rating of 32. In addition, mechanical ventilation (air conditioning) shall be provided to all residences of the development to allow the occupants to close doors and windows, as desired, for additional acoustical isolation. The building plans, showing the upgraded upper-floor windows, shall be subject to review and approval by the Community Development Resource Agency Director.



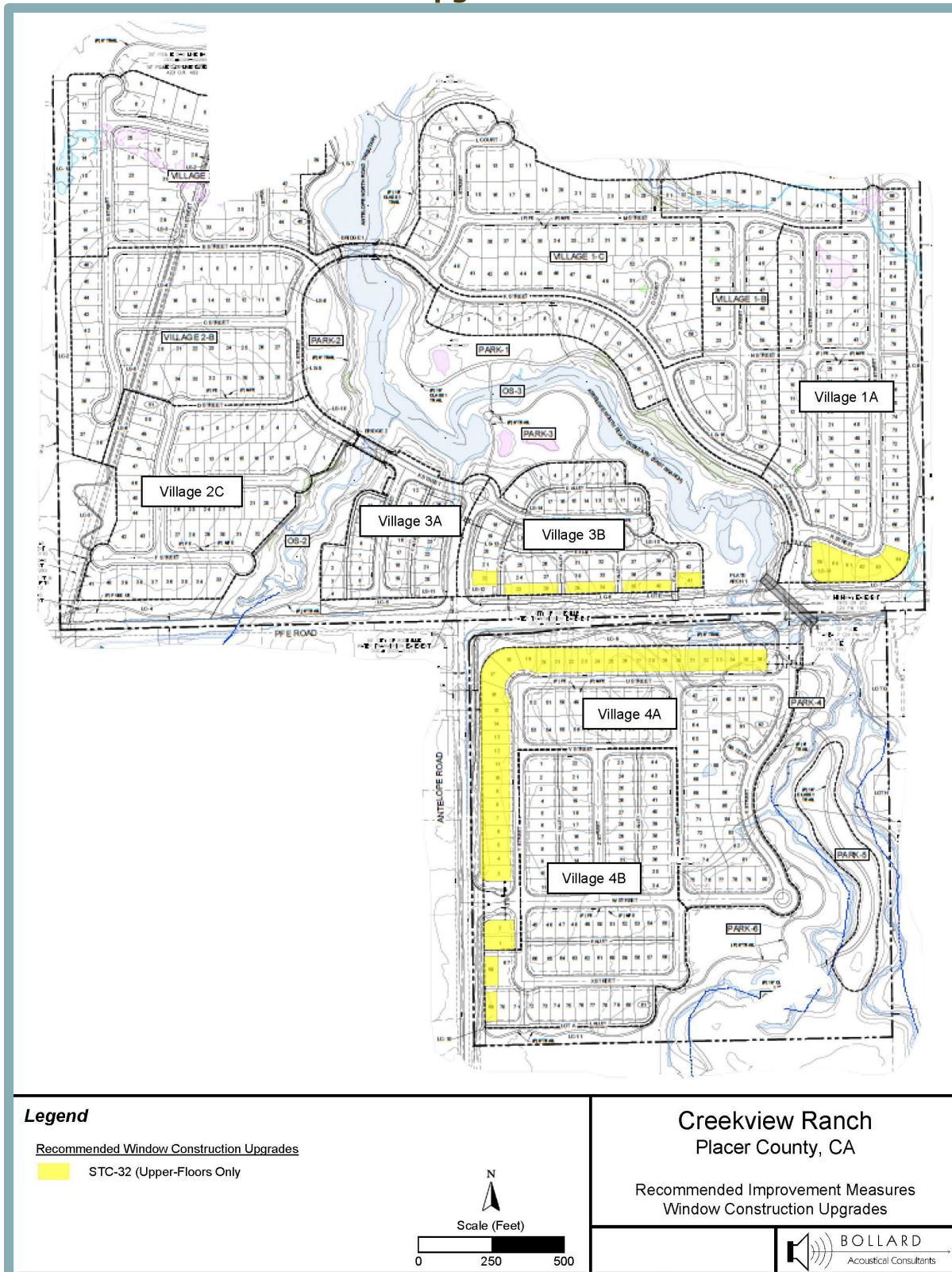


**Figure 14-3**  
**Traffic Noise Barriers – Conditionally Acceptable 65 dB DNL Standard**





**Figure 14-4  
Window Upgrade Locations**



### UPRR Operational Noise at Proposed Residences

An existing UPRR classification yard and railroad tracks are located east of the project site (see Figure 14-2). The project is approximately 2,500 feet from the center of the UPRR railyard and tracks. According to the Noise Assessment, which cites the City of Roseville General Plan, noise levels associated with the UPRR classification yard include master and group retarder “squeal,” recurring impulsive noises, and train passbys (both freight and passenger).

The “squeal” occurs primarily at the south end of the yard and is a result of freight train cars passing through retarders on their path to the classification yard after being pushed over the hump. The recurring impulsive noise generally occurs at the north end of the yard and is a result of train cars hitting together. The Roseville General Plan states that operations within the maintenance area are not anticipated to change substantially in the future.

Figure IX-3 of the Roseville General Plan contains the established 60 dB DNL noise contour associated with UPRR operations within the project vicinity, including noise from classification yard activities and train passbys. The project site is located well outside of the identified 60 dB DNL railroad noise contour. In addition, the measured DNL levels at Site 5, which is located at the southeast portion of the project site nearest to the UPRR operations, did not exceed 53 dB DNL during the 72-hour monitoring period (see Table 14-2).

Based on the above, existing or future noise associated with UPRR operations is not expected to exceed the applicable Placer County General Plan exterior or interior DNL standards at the proposed residences of the project.

### Industrial Noise at Proposed Residences

Existing industrial uses are located to the east of the Schellhaus and Placer Greens parcels and to the south and southeast of the Placer Greens parcel. The industrial use to the south of the project site consists of an RV and truck storage facility. The industrial uses to the southeast of the project site consist primarily of material storage yards and a Vulcan Materials facility, where ready-mix concrete, asphalt plant, and materials recycling operations occur. Finally, light industrial fabrication and equipment storage yards are located to the east of the project site. The locations of the existing industrial uses can be seen on Figure 14-2.

Noise measurement Sites 1 and 5 were specifically selected to be representative of the ambient noise level environment within the southern and eastern portions of the project site, including noise generated from adjacent industrial operations. The ambient noise survey included days in which the industrial businesses conducted normal operations (Tuesday through Thursday). The Noise Assessment found that ambient noise levels at Sites 1 and 5 ranged from 51 dB DNL to 53 dB DNL throughout the three-day monitoring period. In addition, the average measured hourly noise levels during daytime hours at the sites ranged from 47 dB  $L_{eq}$  to 50 dB  $L_{eq}$  and from 64 dB  $L_{max}$  to 67 dB  $L_{max}$ . The average measured hourly noise levels during nighttime hours at the sites ranged from 44 dB  $L_{eq}$  to 46 dB  $L_{eq}$  and from 57 dB  $L_{max}$  to 60 dB  $L_{max}$ .



Placer County General Plan Policy 9.A.2 establishes exterior and interior noise level standards of 60 dB DNL and 45 dB DNL, respectively, for residential uses located adjacent to industrial uses. The applicable Placer County Code noise level standards are 55 dB  $L_{eq}$  and 70 dB  $L_{max}$  during daytime hours (7:00 AM to 10:00 PM), and 45 dB  $L_{eq}$  and 65 dB  $L_{max}$  during nighttime hours (10:00 PM to 7:00 AM). Based on the results from the ambient noise survey, daytime DNL,  $L_{eq}$ , and  $L_{max}$  noise levels at Sites 1 and 5 do not exceed the County's applicable exterior noise level limits. However, because the highest average measured hourly level was 46 dB  $L_{eq}$  during nighttime hours, the nighttime  $L_{eq}$  noise levels at Sites 1 and 5 either met or slightly exceeded the Placer County Code's 45 dB  $L_{eq}$  nighttime standard.

Based on the measured noise levels at Sites 1 and 5, noise levels associated with existing nearby industrial operations could potentially exceed applicable noise level limits at the nearest proposed residences. Any additional potential future industrial businesses adjacent to the project site could further increase noise levels and exceedances of the County's applicable noise standards at the nearest proposed residences. In order to ensure consistency with the County's applicable noise standards at the proposed residences that would be located nearest to adjacent industrial uses, the County would require the following conditions of project approval:

1. Prior to building permit issuance for proposed residential lots nearest to adjacent existing industrial uses, the Improvement Plans shall show the construction of eight-foot-tall solid masonry walls at the locations shown on Figure 14-5, which shall be subject to review and approval by the Community Development Resource Agency Director; and
2. Prior to the closing process for all proposed residences, disclosure statements shall be provided to prospective residents of the proposed project, notifying them of the potential for elevated/audible noise levels from Vulcan Materials operations, particularly during nighttime hours when ambient noise levels are lower. Under certain atmospheric conditions, operations occurring at the Vulcan Materials facility to the southeast of the project site could periodically be audible at residences of the development (especially during nighttime facility operations). A copy of each signed disclosure statement shall be submitted to the Placer County Community Development Resource Agency.

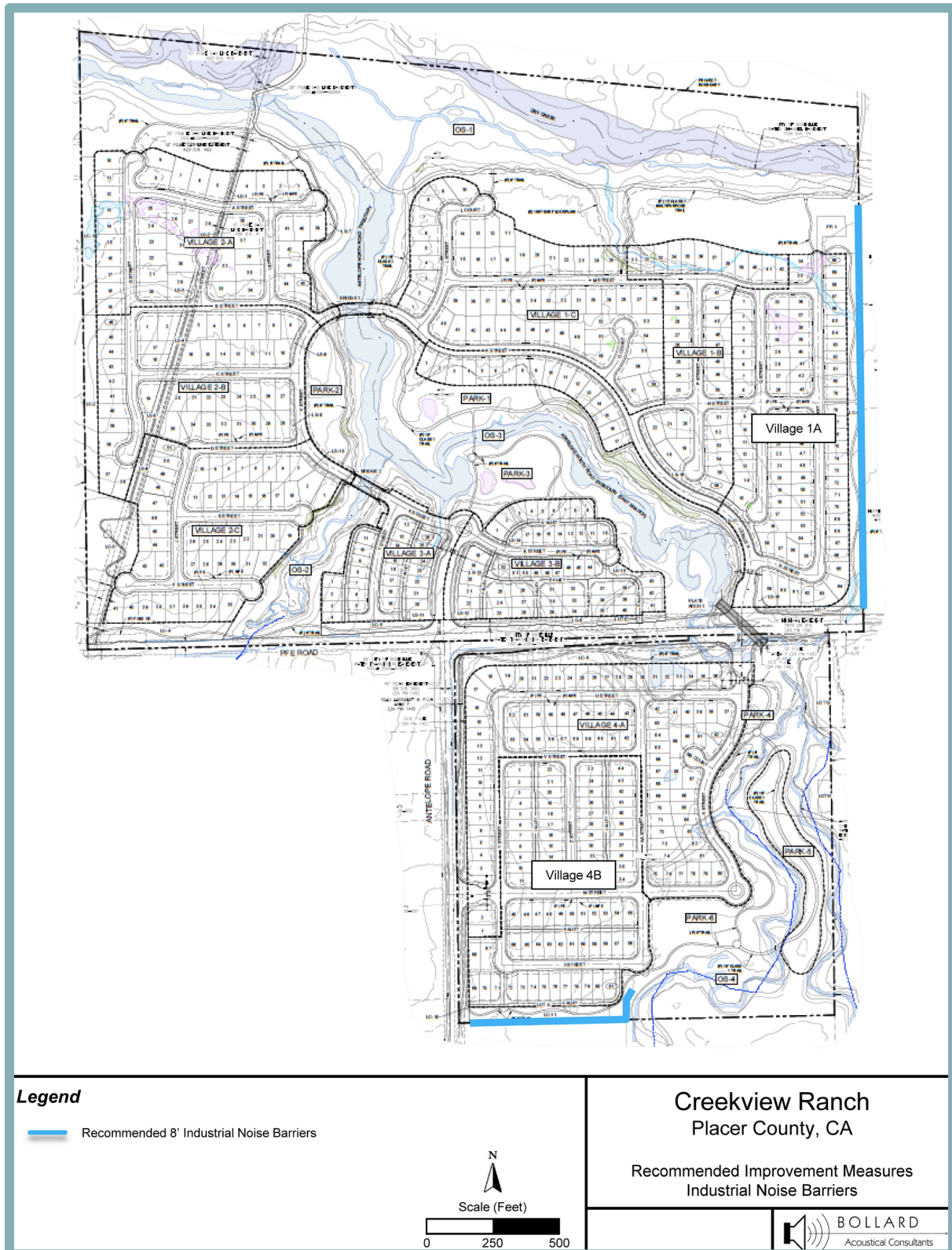
### Conclusion

Based on the above, the proposed project would not result in the generation of a substantial permanent increase in ambient noise levels at existing sensitive receptors located along local roadways. However, traffic noise at a number of the proposed single-family residences could exceed the County's 60 dB DNL exterior and 45 dB DNL interior noise level standards. In addition, noise from adjacent existing industrial uses could exceed the County's applicable noise level standards at a portion of the proposed residences. However, such effects would not be considered an impact under CEQA, and the project would include construction of noise-attenuating features, as required by conditions of approval, sufficient to reduce noise levels from the aforementioned uses at affected residences to below the applicable County noise level standards.





**Figure 14-5  
Industrial Noise Barrier Locations**



Therefore, a ***less-than-significant*** impact would occur related to generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Mitigation Measure(s)

*None required.*

**14-3 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Based on the analysis below, the impact is *less than significant*.**

As presented in Table 14-3, the measured existing ambient vibration levels in the project vicinity are below the strictest Caltrans thresholds for damage to structures and for annoyance. The proposed project would consist of a residential community. Such uses do not typically involve equipment that generates appreciable vibration. Overall, operations associated with the proposed project would not result in the generation of excessive groundborne vibration or groundborne noise levels.

However, construction activities associated with the proposed project would have the potential to result in varying degrees of temporary ground vibration depending on the specific construction equipment used and operations involved. Accordingly, the analysis below focuses on construction vibration only. The potential vibration impacts associated with the proposed on-site and off-site construction activities are discussed separately below.

On-Site Construction Vibration

During on-site project construction, heavy equipment would be used for grading, excavation, paving, and building construction. Heavy equipment would also be used during the proposed roadway improvements. Use of heavy equipment associated with such would generate localized vibration in the immediate vicinity of the project site and roadway improvements area. The nearest existing noise-sensitive receptors are located approximately 75 feet northwest of the project site (north of PFE Road and east of Cook Riolo Road) from where on-site construction activities could occur.

Table 14-15 presents the range of vibration levels for equipment commonly used in general residential construction projects at a reference distance of 25 feet, as well as at the existing residences located approximately 75 feet away from where the nearest on-site construction would occur.

As shown in Table 14-15, construction vibration levels generated from the majority of construction activities within the project site and adjacent roadway improvements at the nearest residences would be well below the Caltrans thresholds for damage to residential structures of 0.5 in/sec PPV (see Table 14-8), as well as below or within the range of barely/slightly perceptible (see Table 14-9). Therefore, on-site construction within the project site and adjacent roadway improvements would not result in excessive groundborne vibration levels at nearby existing residences.





**Table 14-15**  
**Vibration Source Amplitudes for On-Site Construction Equipment**

Equipment	Reference PPV at 25 Feet (in/sec)	Projected PPV at 75 Feet (in/sec)
Vibratory Roller	0.210	0.034
Hoe Ram	0.089	0.017
Large Bulldozer	0.089	0.017
Caisson Drilling	0.089	0.017
Loaded Trucks	0.076	0.015
Jackhammer	0.035	0.007
Small Bulldozer	0.003	<0.001

**Source: Bollard Acoustical Consultants, Inc., 2022.**

In addition, with respect to on-site construction activities associated with the proposed lift station, Table 14-16 includes the range of vibration levels for equipment commonly used in general construction projects at a reference distance of 25 feet, as well as the projected vibration levels at the nearest existing sensitive structures (residences) to each lift station alternative location. As shown in the table, construction vibration levels generated from development of the on-site lift station would be well below the Caltrans thresholds for damage to residential structures of 0.5 in/sec PPV (see Table 14-8), as well as below or within the range of barely/slightly perceptible (see Table 14-9). Therefore, on-site construction of the proposed lift station would not result in excessive groundborne vibration levels at nearby existing residences.

**Table 14-16**  
**Vibration Source Amplitudes for Lift Station Construction Equipment**

Equipment	Reference PPV at 25 Feet (in/sec)	Projected PPV at Nearest Receptors (in/sec)		
		Option 1 (2,000 Feet)	Option 2 (300 Feet)	Option 3 (1,800 Feet)
Vibratory Roller	0.210	<0.001	0.005	<0.001
Hoe Ram	0.089	<0.001	0.002	<0.001
Large Bulldozer	0.089	<0.001	0.002	<0.001
Caisson Drilling	0.089	<0.001	0.002	<0.001
Loaded Trucks	0.076	<0.001	0.002	<0.001
Jackhammer	0.035	<0.001	<0.001	<0.001
Small Bulldozer	0.003	<0.001	<0.001	<0.001

**Source: Bollard Acoustical Consultants, Inc., 2022.**

### Off-Site Construction Vibration

Similar to the on-site construction activities and adjacent roadway improvements, construction of the off-site sewer pipeline alignment would involve heavy equipment, which would generate localized vibration in the immediate vicinity of such activities. Table 14-17 presents the range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet, as well as the projected equipment vibration levels at the nearest identified existing sensitive receptors (residences) to potential off-site improvement work areas. As shown in Table 14-17, vibration levels associated with the



off-site infrastructure improvement work areas would be well below the Caltrans thresholds for damage to residential structures of 0.5 in/sec PPV (see Table 14-8) and annoyance (see Table 14-9).

<b>Table 14-17</b>				
<b>Off-Site Pipeline Alignment Construction Vibration Levels</b>				
<b>Equipment</b>	<b>PPV at 25 Feet (dB)</b>	<b>Predicted Maximum Noise Levels Nearest Receptors (dB)</b>		
		<b>Option 1A (1,200 Feet)</b>	<b>Option 1B (300 Feet)</b>	<b>Option 1C (50 Feet)</b>
Vibratory Roller	0.210	<0.001	0.005	0.074
Hoe Ram	0.089	<0.001	0.002	0.031
Large Bulldozer	0.089	<0.001	0.002	0.031
Caisson Drilling	0.089	<0.001	0.002	0.031
Loaded Trucks	0.076	<0.001	0.002	0.027
Jackhammer	0.035	<0.001	<0.001	0.012
Small Bulldozer	0.003	<0.001	<0.001	0.001
<b>Source: Bollard Acoustical Consultants, Inc., 2022.</b>				

Based on the above, vibration levels generated from off-site infrastructure improvement work areas are not expected to result in excessive groundborne vibration levels at the nearest existing residential uses.

#### Conclusion

Based on the above, construction and operation of the proposed project would not expose persons to or generate excessive groundborne vibration or groundborne noise levels. As such, a ***less-than-significant*** impact would occur.

#### Mitigation Measure(s)

*None required.*

### **Cumulative Impacts and Mitigation Measures**

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

For further detail related to the cumulative setting of the proposed project, refer to Chapter 20, Statutorily Required Sections, of this EIR.

**14-4 Generation of a substantial permanent increase in ambient noise levels associated with cumulative development of the proposed project in combination with future buildout of the DCWPCP. Based on the analysis below, the project’s incremental contribution to the significant cumulative impact is *less than cumulatively considerable*.**



Future development projects within the DCWPCP area, including the proposed project, would incrementally affect the future cumulative ambient noise environment. Given the residential nature of the proposed project, the primary project component that could combine with noise impacts from surrounding development in the project region would be associated with vehicle traffic generated by the project and other planned development projects, which together, could potentially result in a significant cumulative impact related to transportation noise.

To assess the potential noise impacts due to the traffic increase from the proposed project on the local roadway network under Cumulative conditions, noise levels have been calculated for the Cumulative and Cumulative Plus Project conditions at a standard distance of 100 feet from the centerline of the selected roadways using the methodology described in the Method of Analysis section. The estimated noise levels are presented in Table 14-18.

<b>Table 14-18</b>					
<b>Traffic Noise Under Cumulative and Cumulative Plus Project Conditions</b>					
<b>Roadway</b>	<b>Segment</b>	<b>Traffic Noise Level at 100 Feet, DNL (dB)</b>			<b>Substantial Increase?</b>
		<b>C</b>	<b>C+P</b>	<b>Increase</b>	
Cook Riolo Road	Vineyard Road to Creekview Ranch School	61.6	61.7	0.1	No
	Creekview Ranch School to PFE Road	61.1	61.3	0.2	No
PFE Road	Walerga Road to Cook Riolo Road	60.6	61.2	0.6	No
	Cook Riolo Road to Antelope Road	65.6	65.8	0.2	No
	Antelope Road to Hilltop Circle	67.5	68.0	0.5	No
Atkinson Street	Hilltop Circle to Denio Loop	68.7	69.0	0.3	No
Antelope Road	PFE Road to Great Valley Drive	68.2	68.4	0.2	No
	Great Valley Drive to Poker Lane	68.7	68.9	0.2	No
<b>Source: Bollard Acoustical Consultants, Inc., 2022.</b>					

The table includes an assessment of predicted traffic noise levels relative to the FICON noise level increase significance criteria presented in Table 14-7. As shown in the table, the proposed project's incremental increase in traffic noise levels under Cumulative Plus Project conditions would be below the FICON increase significance criteria.

Sensitive receptors exposed to exterior noise levels of 70 dB  $L_{dn}$ , or less, typically comply with the County's 45 dB  $L_{dn}$  interior noise level standard. As shown in Table 14-18, exterior traffic noise levels at a reference distance of 100 feet from the roadway segments in the project vicinity analyzed would be 70 dB  $L_{dn}$  or less. Accordingly, the proposed project would not be expected to result in conflicts with the County's interior noise level standard of 45 dB  $L_{dn}$  at existing residences under Cumulative Plus Project conditions.



Overall, the project's incremental contribution to cumulative traffic noise at existing sensitive receptors would be less-than-significant under Cumulative Plus Project conditions.

As discussed under Impact 14-2, future PFE Road and Antelope Road traffic noise level exposure is predicted to exceed the applicable Placer County General Plan Policy 9.A.2 60 dB DNL exterior noise level standard at the nearest proposed outdoor activity areas (backyards) to the roadways. However, such an effect would constitute the existing environment's effect on the project, which is not considered an impact under CEQA. In order to address such noise levels, the County would require, through the project's conditions of approval, traffic noise barriers, masonry walls near adjacent industrial uses, and disclosure statements notifying future residents of the potential for elevated/audible noise levels from Vulcan Materials operations. With incorporation of the project's conditions of approval, noise levels at the affected proposed residences would be reduced to below the County's 60 dB DNL exterior and 45 dB DNL interior noise level standards under Cumulative Plus Project conditions.

Based on the above, under Cumulative Plus Project conditions, the proposed project would not result in a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the project's incremental contribution to cumulative traffic noise impacts would be ***less than cumulatively considerable***.

Mitigation Measure(s)

*None required.*

